

## CLAIMS

What is claimed is:

1. An RF amplifier system comprising:  
an RF power amplifier having an RF output;  
a coupler coupled to the RF power amplifier to detect the RF output;  
a digital signal analysis circuit coupled to the coupler to produce a digital signal that provides a spectral depiction of the RF output; and  
an interface coupled to the digital signal analysis circuit to provide the spectral depiction of the RF output to an attached computer.
2. The RF amplifier system of claim 1, wherein the digital signal analysis circuit further comprises:  
a ramp generator;  
a voltage controlled oscillator (VCO) coupled to the ramp generator;  
a mixer coupled to the coupler and to the VCO;  
a filter coupled to the mixer;  
a log detector coupled to the filter; and  
an analog-to-digital converter coupled to the log detector.
3. The RF amplifier system of claim 2, wherein the digital signal analysis circuit further comprises a second analog-to-digital converter coupled to the ramp generator in parallel with the VCO.
4. The RF amplifier system of claim 2, wherein the ramp generator is further coupled to the analog-to-digital converter and the ramp generator produces a blanking signal of a known interval simultaneously with a zero VDC point of a signal from the ramp generator that is fed into the output of the log detector.
5. The RF amplifier system of claim 4, further comprising a microprocessor that is coupled to the ramp generator to control the production of the blanking signal.

6. The RF amplifier system of claim 1, wherein the interface is a computer interface to provide the spectral depiction of the RF output that can be read by a connected computer.
7. The RF amplifier system of claim 1, wherein the interface is an internet interface to provide the spectral depiction of the RF output that can be read by a computer connected to the interface output by an internet connection.
8. A method of providing an a spectral depiction of an RF output from an RF amplifier system, the method comprising:
  - coupling to the RF output of an RF power amplifier in the RF amplifier system to detect the RF output;
  - performing digital signal analysis to produce a digital signal that provides a spectral depiction of the RF output; and
  - providing an interface on the RF amplifier system that allows a computer to be connected to the RF amplifier system to obtain the spectral depiction of the RF output.
9. The method of claim 8, wherein performing digital signal analysis further comprises:
  - generating a ramp voltage;
  - controlling a frequency of an oscillator signal with the ramp voltage;
  - mixing the detected RF output with the oscillator signal to produce a mixed signal;
  - filtering the mixed signal;
  - logarithmically detecting the filtered signal; and
  - converting the analog logarithmically detected signal to the spectral depiction of the RF output.
10. The method of claim 9, wherein performing digital signal analysis further comprises converting the ramp voltage to the spectral depiction of the RF output.
11. The method of claim 9, wherein performing digital signal analysis further comprises producing a blanking signal of a known interval simultaneously

with a zero VDC point of the ramp voltage and feeding the blanking signal into the logarithmically detected signal.

12. The method of claim 8, wherein providing an interface on the RF amplifier system provides the spectral depiction of the RF output that can be read by a connected computer.
13. The method of claim 8, wherein providing an interface on the RF amplifier system provides the spectral depiction of the RF output that can be read by a computer connected to the interface output by an internet connection.
14. An RF amplifier system comprising:
  - an RF power amplifier means for producing an RF output;
  - a first means coupled to the RF power amplifier means for detecting the RF output;
  - a second means coupled to the first means for producing a digital signal that provides a spectral depiction of the RF output; and
  - a third means coupled to the third means for providing the spectral depiction of the RF output to an attached computer.
15. The RF amplifier system of claim 14, wherein the second means further comprises:
  - a ramp generator means for generating a ramp voltage;
  - a voltage controlled oscillator (VCO) means coupled to the ramp generator means for controlling a frequency of an oscillator signal with the ramp voltage;
  - a mixer means coupled to the first means and to the VCO means for mixing the detected RF output with the oscillator signal to produce a mixed signal;
  - a filter means coupled to the mixer means for filtering the mixed signal;
  - a log detector means coupled to the filter means for logarithmically detecting the filtered signal; and
  - an analog-to-digital converter means coupled to the log detector means for converting the analog logarithmically detected signal to the spectral depiction of the RF output.

16. The RF amplifier system of claim 15, wherein the second means further comprises a second analog-to-digital converter means coupled to the ramp generator means in parallel with the VCO means for converting the ramp voltage to the spectral depiction of the RF output.
17. The RF amplifier system of claim 15, wherein the ramp generator means is further coupled to the analog-to-digital converter means and the ramp generator means is further for producing a blanking signal of a known interval simultaneously with a zero VDC point of a signal from the ramp generator means that is fed into the output of the log detector means.
18. The RF amplifier system of claim 17, further comprising a microprocessor means that is coupled to the ramp generator means for controlling the producing of the blanking signal.
19. The RF amplifier system of claim 14, wherein the third means is for providing the spectral depiction of the RF output that can be read by a connected computer.
20. The RF amplifier system of claim 14, wherein the third means is for providing the spectral depiction of the RF output that can be read by a computer connected to the interface output by an internet connection.
21. An RF amplifier system comprising:
  - an RF power amplifier means for producing an RF output;
  - a first means for coupling to the RF output to detect the RF output;
  - a second means for performing digital signal analysis to produce a digital signal that provides a spectral depiction of the RF output; and
  - a third means for providing an interface on the RF amplifier system that allows a computer to be connected to the RF amplifier system to obtain the spectral depiction of the RF output.
22. The RF amplifier system of claim 21, wherein the second means further comprises:
  - a ramp generator means for generating a ramp voltage;

a voltage controlled oscillator (VCO) means for coupling to the ramp generator means to control a frequency of an oscillator signal with the ramp voltage;

a mixer means for coupling to the first means and to the VCO means to produce a mixed signal;

a filter means for coupling to the mixer means to filter the mixed signal;

a log detector means for coupling to the filter means to logarithmically detect the filtered signal; and

an analog-to-digital converter means for coupling to the log detector means to converting the analog logarithmically detected signal to the spectral depiction of the RF output.

23. The RF amplifier system of claim 22, wherein the second means further comprises a second analog-to-digital converter means for coupling to the ramp generator means in parallel with the VCO means to convert the ramp voltage to the spectral depiction of the RF output.
24. The RF amplifier system of claim 22, wherein the ramp generator means is further for coupling to the analog-to-digital converter means and the ramp generator means is further to produce a blanking signal of a known interval simultaneously with a zero VDC point of a signal from the ramp generator means that is fed into the output of the log detector means.
25. The RF amplifier system of claim 24, further comprising a microprocessor means for coupling to the ramp generator means to control the production of the blanking signal.
26. The RF amplifier system of claim 21, wherein the third means allows a computer to be connected by an internet connection.